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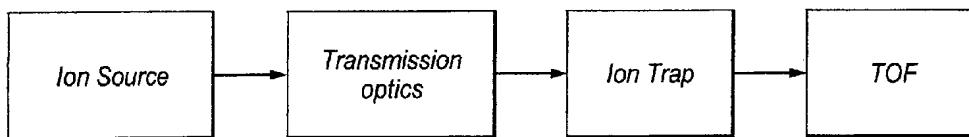
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(54) Title: A TANDEM ION-TRAP TIME-OF-FLIGHT MASS SPECTROMETER



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(57) **Abstract:** A tandem linear ion trap and time-of-flight mass spectrometer, where the ion trap has a straight central axis orthogonal to the flight path of the mass spectrometer. The ion trap comprises a set of electrodes, (401, 403, 402, 404) at least one of the electrodes has a slit for ejecting ions towards the mass spectrometer; a set of DC voltage supplies (+V, -V, V1, V2) to provide discrete DC levels and a number of fast electronic switches (409) for connecting/disconnecting the DC supplies to at least two of the electrodes; a neutral gas filling the ion trap and a digital controller to provide a switching procedure of ion trapping, manipulation with ions, cooling and including a state at which all ions are ejected from the ion trap towards the mass spectrometer.